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ABSTRACT

A guide to help students from other countries pursue graduate education in chemistry in the United States is presented. The process of gaining admission to U.S. universities is emphasized, and the nature of graduate education is briefly explained. It is noted that students majoring in chemistry are expected to have a sound background in analytical, inorganic, organic, and physical chemistry. A representative list of textbooks used in U.S. chemistry departments in recent years is included for each subfield of chemistry, and a few mathematics and physics texts are also listed. Attention is also directed to preparation for foreign students entering graduate schools in chemistry, financial aid, selection of a graduate school in chemistry, and application to graduate schools. Steps in the application process and the associated time frame are covered, including entrance examinations. Finally, the names and addresses of U.S. and Canadian institutions that offer Ph.D. degrees in chemistry are presented. (SW)

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GRADUATE STUDY IN CHEMISTRY IN THE UNITED STATES

A Guide for Non-U.S. Students

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I. Introduction

The aim of this guide is to help students from other countries pursue their interest in obtaining a graduate education in chemistry in the United States. The guide is designed particularly to clarify the process of gaining admission to U.S. universities. It also explains briefly the nature of graduate education in this country.

Students who are considering graduate education in chemistry in the United States should first assess the advantages of doing their graduate studies in their own countries. Those who decide to come to the U.S. should make sure that their graduate training will enhance their job opportunities in their own countries because most students are expected to return home upon completing their graduate work in the U.S.

The information in this guide has been taken from sources that are readily available in the United States. The opinions expressed, however, are those of the authors of the guide and do not necessarily reflect the policies of their university or of the American Chemical Society.

This guide is necessarily brief, but students will find more extensive information in a booklet published by the American Chemical Society.* The booklet should be available in the chemistry departments of all schools visited by the U.S. interviewers who are distributing this guide. It should also be available at all U.S. Embassies and Consulates, U.S. Information Agency libraries, and headquarters of national chemical societies.

II. Synopsis of University Education in Chemistry in the U.S.

U.S. students typically complete 12 years of education before entering a college or university to do their undergraduate work. Upon completing their undergraduate studies, which usually require at least four years, they are awarded a B.A. (Bachelor of Arts) or B.S. (Bachelor of Science) degree. Students who have majored in chemistry are expected to have a

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*_Guide to Chemical Education in the U.S. for Foreign Students_, Committee on International Activities, American Chemical Society, Washington, D.C. 1981.

sound background in analytical, inorganic, organic, and physical chemistry. Although biochemistry is not a required subject for chemistry majors, students are encouraged to include at least one biochemistry course in their undergraduate programs.

In addition to the descriptive material in these areas of chemistry, problem-solving techniques in all of them are emphasized very strongly. Chemistry majors also are required to have a sound grasp of the fundamentals in physics and mathematics and must have a working knowledge of computer science and programming. Perhaps the best way to assess the undergraduate curriculum in chemistry is to examine the textbooks used in U.S. universities. The following is a representative list of textbooks used in U.S. chemistry departments in recent years, and representative lists also appear in *Guide to Chemical Education in the U.S. for Foreign Students* mentioned earlier.

Analytical

Christian, *Analytical Chemistry.*

Freiser and Fernando, *Ionic Equilibria in Analytical Chemistry.*

Fernando and Ryan, *Calculations in Analytical Chemistry.*

Harris and Kratochvil, *An Introduction to Chemical Analysis.*

Skoog and West, *Fundamentals of Analytical Chemistry* (4th Ed.)

Willard, Merritt, and Dean, *Instrumental Methods of Analysis* (6th Ed.)

Inorganic

Brown, *Chemistry, The Central Science.*

Cotton and Wilkinson, *Advanced Inorganic Chemistry.*

Huheey, *Inorganic Chemistry.*

King, *Chemistry.*

Mahan, *Elementary Chemical Thermodynamics.*

Organic

Ault and Addison, *Techniques and Experiments in Organic Chemistry* (3rd Ed.)

Brewster, *Unitized Experiments in Organic Chemistry* (4th Ed.)

Fessenden and Fessenden, *Organic Chemistry* (2nd Ed.)

Kemp and Vellacio, *Organic Chemistry*

Morrison and Boyd, *Organic Chemistry*

Pasto and Johnson, *Organic Structure Determination.*

Physical

Atkins, *Physical Chemistry* (2nd Ed.)

Barrow, *Physical Chemistry* (3rd Ed.)

Shoemaker/Garland, Steinfeld/Nilolu, *Experiments in Physical Chemistry*

Biochemistry

Lehninger, *Biochemistry* (2nd Ed.)

The background that students are expected to have in physics and mathematics includes classical mechanics, electricity and magnetism, optics, thermodynamics, differential and integral calculus, and differential equations. This list of topics is not comprehensive; again, the curriculum is best illustrated by textbooks in current use:

Mathematics

Barnett, *Calculus* (2nd Ed.)

Anton, *Calculus with Analytical Geometry*

Ross, *Introduction to Ordinary Differential Equations* (3rd Ed.)

Physics

Halliday and Resnick, *Fundamentals of Physics.*
Physics Part I (3rd Ed.)
Physics Part II
Physics Part I and Part II Combined Edition

Hudson, *Basic Concepts in Physics* (Workbook)

Weidner and Sells, *Elementary Modern Physics* (3rd Ed.)

All students who enter graduate school must demonstrate that they have the breadth as well as the depth of knowledge in the various areas of chemistry. This is usually demonstrated by passing qualifying examinations in each of these areas.

Graduate schools award M.A. (Master of Arts) and M.S. (Master of Science) degrees as well as the Ph.D (Doctor of Philosophy). The M.A. and M.S. degrees are intermediate between the B.S. and Ph.D. The requirements for a master's degree and the reasons for awarding it vary from institution to institution.

Some students enter graduate school to work only for an M.A. or M.S. degree in chemistry; many such students will seek employment in the chemical industry or as chemistry teachers at the secondary (precollege) level. Students who intend to pursue a career in independent research, however, normally will be required to have a Ph.D. degree.

Students usually spend four to five years working toward a Ph.D. degree in chemistry. During that period they must take oral and written examinations that test their breadth of knowledge, their ability, and the depth of understanding they have acquired in their fields of specialization, as well as their ability to communicate this knowledge and understanding. The examination systems vary from one institution to another. Typical, however, are a written examination for the Ph.D. degree in chemistry that consists of a series of cumulative examinations plus a final oral examination that involves the defense of a research proposal that is original with the student. All institutions, in fact, require Ph.D. candidates to defend their research, which is presented as a written dissertation at a final oral examination.

III. Preparation for Foreign Students Entering Graduate Schools in Chemistry

Undergraduate chemistry curriculums in non-U.S. universities differ in many ways from those in the United States. Many of the difficulties experienced by students from abroad can be attributed to these differences in training, but such difficulties can be resolved in a reasonably short time. A general weakness in solving problems, however, is prevalent among the vast majority of foreign students who enter U.S. graduate schools. One of the best ways to correct this weakness is to obtain a group of textbooks like those listed in Section II and solve the problems at the end of each chapter. Typical problems are also included in the *Guide* published by the American Chemical Society mentioned earlier. The importance of this type of self-study cannot be overemphasized. It is advisable for prospective students to begin preparing themselves in this manner at least six months before they depart for the U.S.

It is taken for granted that most foreign graduate students will participate in some manner in the undergraduate teaching program in a U.S. university for at least one year. Students may be required to teach undergraduate laboratory classes and grade homework problems and examinations. A good command of the English language is essential to the

satisfactory performance of these duties. And again, inability to solve elementary problems in general chemistry will considerably impair the effectiveness of foreign graduate students as teaching assistants. Ability to solve problems in solution equilibria, chemical kinetics, and thermodynamics is preferable to rote-learning in these areas.

IV. Financial Aid

Several forms of financial aid are available to foreign students studying at U.S. universities. Students should explore all of these to ensure a successful transition to graduate education in the U.S. First of all, they should explore scholarship resources in their home countries. Some students who are admitted to U.S. graduate programs are offered financial assistance in the form of teaching and research assistantships. Other students are offered scholarships. These forms of assistance, however, do not cover the student's expenses completely. Students should plan their finances carefully, because they are not normally allowed to work outside the university while on a student visa.

V. Selection of a Graduate School in Chemistry

Approximately 200 institutions (see Section VII) in the U.S. offer the Ph.D degree in chemistry. Every two years, the American Chemical Society publishes a comprehensive list of these institutions, together with the names of faculty members in each department, their research interests, and their recent publications. This publication contains a wealth of information about graduate schools in chemistry; its title is *Directory of Graduate Research*, and it is obtainable from:

American Chemical Society
1155 Sixteenth Street, N.W.
Washington, D.C. 20036
U.S.A.

The cost is $43.00 prepaid to destinations outside the U.S.

Foreign students who are interested in working toward an advanced degree in chemistry in the U.S. understandably may have questions about which schools they should apply to. Many of the universities listed in Section VII may fit the requirements of a particular individual. Following are some general criteria that should be considered when selecting a graduate school.

Institutions that grant advanced degrees in chemistry may be divided roughly into three groups: large, state-supported universities; private universities with excellent research-oriented facilities; and small universities that place great emphasis on teaching and individual attention to students. This kind of information may be obtained from the ACS *Directory of Graduate Research* and from informal conversations with students and faculty who have spent some time in the U.S. Foreign students should apply to at least two institutions from each of the three categories.

It is advisable to apply to about six institutions simultaneously. This is the practice of most U.S. students who are applying to graduate schools. An important consideration for foreign students is the initial application fee ($10 to $25) which is nonrefundable, even if admission is declined either by the institution or by the student. Some universities may waive this fee for foreign students.

VI. Application to Graduate Schools

The process of applying to graduate schools in chemistry must be initiated at least a year in advance. The prospective student should adhere to the following timetable if the application process is to succeed.

One Year in Advance

Send for catalogs and financial aid information to compare program specialties and appropriateness for student's interests.

Obtain information about visa requirements from U.S. Embassy or Consulate in home country.

A completed Certificate of Eligibility form (I-20 or IAP-66) is required for entry into the U.S. in student status. The student will obtain this form from the university to which he is admitted. To obtain admission to a U.S. university the student will be required to demonstrate adequate financial support as well as an adequate academic record and evidence of proficiency in English.

Consult with your professors about their recommendations on which schools to apply to and on securing letters of recommendation. Also, most countries have student advisory centers in Fulbright offices or offices of the U.S. Information Agency in U.S. Embassies and Consulates.

Check entrance requirements to determine if you have deficiencies in coursework. If so, you may be able to make up some of them before going to the U.S.

Institutions require proficiency in English for admittance, and taking the Test of English as a Foreign Language (TOEFL) is virtually a universal requirement. For schedules, locations, and costs, contact TOEFL at:

TOEFL Application Center
Educational Testing Service
Box 899
Princeton, New Jersey 08541
U.S.A.

Many institutions also require the general Graduate Record Examination (GRE), a test of ability in verbal and quantitative skills. Some institutions also require the GRE advanced test in chemistry. For information about the GRE, write:

Graduate Record Examination
Educational Testing Service
Box 955
Princeton, New Jersey 08541
U.S.A.

Nine Months in Advance

Apply for admission and financial aid to at least six universities. Keep copies of what you send them (transcripts, letters of recommendation, etc.) The Educational Testing Service will send TOEFL and GRE scores to universities designated by the student.

Test results and translations of transcripts and letters take time; plan for a delay. Evaluate your financial situation to ensure that you will be able to provide letters of support needed for the I-20 or IAP-66 form. Applicants will have to have their letters of recommendation and transcripts officially translated and sent in the original language and in English to the universities they apply to.

Six Months in Advance

If you have not heard from an institution, write again to the graduate student admissions office or to the head of the chemistry department to determine your status.

When you receive a favorable response from an institution, reply as soon as possible.

Prospective graduate students may receive several kinds of letters from an institution. (a) You may be admitted to graduate school; this does *not* mean that you will be given automatic financial support. (b) You may be admitted to graduate school and offered a teaching or a research assistantship. This does *not* mean that your tuition fees will be waived or even reduced. Note that under no circumstances will a university pay for your transportation to and from the U.S.

Three Months in Advance

When you have ascertained the type of offer you have received from a university and all its financial implications, you should take the necessary steps to obtain a visa to enter the U.S. You do this by taking your Certificate of Eligibility to the U.S. Embassy or Consulate nearest your home and applying for a student visa.

Make your financial arrangements so that you will have an easy transition. This may involve exchange regulations in your home country.

Arrange your transportation and obtain information from the U.S. university about housing and transportation from the airport or bus or train depot.

VII. Institutions in the United States and Canada that Offer Ph.D. Degrees in Chemistry

University of Akron
Akron, Ohio 44325

University of Alabama
Box H
University, Alabama 35486

University of Alabama/Birmingham
222-2 University Station
Birmingham, Alabama 35294

University of Alberta
Edmonton, Alberta
Canada T6G2G2

American University
Massachusetts and Nebraska
Avenues, NW
Washington, DC 20016

Arizona State University
Tempe, Arizona 85281

University of Arizona
Tucson, Arizona 85721

University of Arkansas
Fayetteville, Arkansas 72701

Atlanta University
Atlanta, Georgia 30314

Auburn University
Auburn University, Alabama 36849

Baylor University
Waco, Texas 76798

Boston College
Chestnut Hill, Massachusetts 02167

Boston University
685 Commonwealth Avenue
Boston, Massachusetts 02215

Brandeis University
Waltham, Massachusetts 02254

Brigham Young University
Provo, Utah 84602

University of British Columbia
Vancouver, British Columbia
Canada V6T IY6

Brown University
Providence, Rhode Island 02912

Bryn Mawr College
Bryn Mawr, Pennsylvania 19010

University of Calgary
2920 24 Avenue NW
Calgary, Alberta, Canada T2N1NY

California Institute of Technology
1201 E. California Blvd.
Pasadena, California 91125

University of California at Berkeley
Berkeley, California 94720

University of California at Davis
Davis, California 95616

University of California at Irvine
Irvine, California 92717

University of California at Los Angeles
405 Hilgard Avenue
Los Angeles, California 90024

University of California at Riverside
Riverside, California 92521

University of California at San Diego
La Jolla, California 92093

University of California at Santa Barbara
Santa Barbara, California 93106

University of California at Santa Cruz
Santa Cruz, California 95064

Carleton University
Ottawa, Ontario, Canada K1S 5B6

Carnegie-Mellon University
4400 Fifth Avenue
Pittsburgh, Pennsylvania 15213

Case Western Reserve University
University Circle
Cleveland, Ohio 44106

Catholic University of America
Michigan Avenue at 7th Street, NE
Washington, District of Columbia 20064

University of Chicago
5735 South Ellis Avenue
Chicago, Illinois 60637

University of Cincinnati
Cincinnati, Ohio 45221

City University of New York
33 West 42nd Street
New York, New York 10036

Clark University
Worcester, Massachusetts 01610

Clarkson College of Technology
Potsdam, New York 13676

Clemson University
Clemson, South Carolina 29631

Cleveland State University
Cleveland, Ohio 44115

Colorado School of Mines
Golden, Colorado 80401

Colorado State University
Fort Collins, Colorado 80523

University of Colorado
Boulder, Colorado 80309

Columbia University
116th Street and Broadway
New York, New York 10027

Concordia University
1455 de Maisonneuve Blve., West
Montreal, Quebec, Canada H3G 1M8

University of Connecticut
Storrs, Connecticut 06268

Cornell University
Ithaca, New York 14853

Dalhousie University
Halifax, Nova Scotia
Canada B3H 4J3

Dortmouth College
Hanover, New Hampshire 03755

University of Delaware
Newark, Delaware 19711

University of Denver
Denver, Colorado 80208

University of Detroit
4001 West McNichols Road
Detroit, Michigan 48221

Drexel University
32nd and Chestnut Streets
Philadelphia, Pennsylvania 19104

Duke University
Durham, North Carolina 27706

Duquesne University
Pittsburgh, Pennsylvania 15282

Emory University
Atlanta, Georgia 30322

Florida Atlantic University
Boca Raton, Florida 33431

Florida State University
Tallahassee, Florida 32306

University of Florida
Gainesville, Florida 32611

Fordham University
Bronx, New York 10458

George Washington University
725 21st Street, NW
Washington, District of Columbia 20052

Georgetown University
37th and O Streets, NW
Washington, District of Columbia 20057

Georgia Institute of Technology
Atlanta, Georgia 30332

University of Georgia
Athens, Georgia 30602

University of Guelph
Guelph, Ontario
Canada N1G 2W1

Harvard University
12 Oxford Street
Cambridge, Massachusetts 02138

University of Hawaii
2545 The Mall
Honolulu, Hawaii 96822

University of Houston
400 Calhoun Street
Houston, Texas 77004

Howard University
2400 Sixth Street, NW
Washington, District of Columbia 20059

University of Idaho
Moscow, Idaho 83843

Illinois Institute of Technology
Chicago, Illinois 60616

University of Illinois at Chicago Circle
P.O. Box 4348
Chicago, Illinois 60680

University of Illinois
505 South Mathews Avenue
Urbana, Illinois 61801

Indiana University
Bloomington, Indiana 47405

Iowa State University of Science and Technology
Ames, Iowa 50011

University of Iowa
Iowa City, Iowa 52242

Johns Hopkins University
Charles and 34th Streets
Baltimore, Maryland 21218

Kansas State University
Manhattan, Kansas 66506

University of Kansas
Lawrence, Kansas 66044

Kent State University
Kent, Ohio 44242

University of Kentucky
Lexington, Kentucky 40506

Laval University
Cite Universitaire, Quebec
Quebec, Canada G1K 7P4

Lehigh University
Bethlehem, Pennsylvania 18015

Louisiana State University/Baton Rouge
Baton Rouge, Louisiana 70803

University of Louisville
Louisville, Kentucky 40292

University of Lowell
1 University Avenue
Lowell, Massachusetts 01854

Loyola University of Chicago
6525 North Sheridan Road
Chicago, Illinois 60626

University of Maine
Orono, Maine 04469

University of Manitoba
Winnipeg, Manitoba
Canada R3T 2N2

Marquette University
535 North 14th Street
Milwaukee, Wisconsin 53233

University of Maryland
College Park, Maryland 20742

Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, Massachusetts 02139

University of Massachusetts
Amherst, Massachusetts 01003

McGill University
801 Sherbrooke Street W.
Montreal, Quebec
Canada H3A 2K6

McMaster University
Hamilton, Ontario
Canada L8S 4M1

Memorial University of Newfoundland
Elizabeth Avenue
St. John's, Newfoundland
Canada A1B 3X7

Memphis State University
Memphis, Tennessee 38152

Miami University
Oxford, Ohio 45056

University of Miami
Coral Gables, Florida 33124

Michigan State University
East Lansing, Michigan 48824

Michigan Technological University
Houghton, Michigan 49931

University of Michigan
Ann Arbor, Michigan 48104

University of Minnesota
207 Pleasant Street SE
Minneapolis, Minnesota 55455

Mississippi State University
Mississippi State, Mississippi 39762

University of Mississippi
University, Mississippi 38677

University of Missouri/Columbia
Columbia, Missouri 65211

University of Missouri/Kansas City
5100 Rockhill Road
Kansas City, Missouri 64110

University of Missouri/Rolla
Rolla, Missouri 65401

University of Missouri/St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 61321

Montana State University
Bozeman, Montana 59715

University of Montana
Missoula, Montana 59812

University of Montreal
C.P. 6210, Succursale A
Montreal, Quebec, Canada
H3C 3V1

Mount Holyoke College
South Hadley, Massachusetts 01075

University of Nebraska
Lincoln, Nebraska 68588

University of Nevada/Reno
Reno, Nevada 89557

University of New Brunswick
Fredericton, New Brunswick
Canada E3B 6E2

University of New Hampshire
Durham, New Hampshire 03824

New Mexico State University
Las Cruces, New Mexico 88003

University of New Mexico
Albuquerque, New Mexico 87131

University of New Orleans
New Orleans, Louisiana 70122

New York University
Washington Square
New York, New York 10003

North Carolina State University
Raleigh, North Carolina 27607

University of North Carolina at
Chapel Hill
Chapel Hill, North Carolina 27514

North Dakota State University
Fargo, North Dakota 58105

University of North Dakota
Grand Forks, North Dakota 58202

North Texas State University
P.O. Box 5068
Denton, Texas 76203

Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115

Northern Illinois University
DeKalb, Illinois 60115

Northwestern University
Evanston, Illinois 60201

University of Notre Dame
Notre Dame, Indiana 46556
Ohio State University
140 West 18th Avenue
Columbus, Ohio 43210

Ohio University
Athens, Ohio 45701

Oklahoma State University
Stillwater, Oklahoma 74078

University of Oklahoma
620 Parrington Oval
Norman, Oklahoma 73019

Oregon Graduate Center for Study
and Research
19600 N.W. Walker Road
Beaverton, Oregon 97006

Oregon State University
Corvallis, Oregon 97331

University of Oregon
Eugene, Oregon 94703

University of Ottawa
Ottawa, Ontario
Canada K1N 9B4

University of the Pacific
3601 Pacific Avenue
Stockton, California 95211

Pennsylvania State University
University Park, Pennsylvania
16802

University of Pennsylvania
Philadelphia, Pennsylvania 19104

Philadelphia College of Pharmacy
and Science
43rd and Kingessing Mall
Philadelphia, Pennsylvania 19104

University of Pittsburgh
Pittsburgh, Pennsylvania 15260

Polytechnic Institute of New York
333 Jay Street
Brooklyn, New York 11201

Portland State University
P.O. Box 751
Portland, Oregon 97207

Princeton University
Princeton, New Jersey 08540

University of Puerto Rico/
Rio Piedras
Rio Piedras, Puerto Rico 00931

Purdue University
West Lafayette, Indiana 47907

Queen's University
Kingston, Ontario
Canada K7L 3N6

University of Regina
Regina, Saskatchewan
Canada S4S 0A2

Rensselaer Polytechnic Institute
Troy, New York 12181

University of Rhode Island
Kingston, Rhode Island 02881

Rice University
P.O. Box 1892
Houston, Texas 77001

University of Rochester
River Station
Rochester, New York 14627

Rockfeller University
1230 York Avenue
New York, New York 10021

Rutgers University
New Brunswick, New Jersey 08903

Rutgers University/Newark
73 Warren Street
Newark, New Jersey 07102

San Diego State University
San Diego, California 92182

University of Saskatchewan
Saskatoon, Saskatchewan
Canada S7N 0W0

Seton Hall University
South Orange, New Jersey 07079

University of Sherbrooke
Sherbrooke, Quebec
Canada J1K 2R1

Simon Fraser University
Burnaby
British Columbia, Canada V5A 1S6

University of South Carolina
Columbia, South Carolina 29208

University of South Florida
4202 Fowler Avenue
Tampa, Florida 33620

University of Southern California
Los Angeles, California 90007

Southern Illinois University at Carbondale
Carbondale, Illinois 62901

University of Southern Mississippi
Box 5043 Southern Station
Hattiesburg, Mississippi 39401

Stanford University
Stanford, California 94305

State University of New York at Albany
1400 Washington Avenue
Albany, New York 12222

State University of New York at Binghamton
Vestal Parkway East
Binghamton, New York 13901

State University of New York at Buffalo
Buffalo, New York 14214

State University of New York at Stony Brook
Stony Brook, New York 11794

State University of New York
College of Environmental Science and Forestry
Syracuse, New York 13210

Stevens Institute of Technology
Castle Point Station
Hoboken, New Jersey 07030

Syracuse University
Syracuse, New York 13210

Temple University
Philadelphia, Pennsylvania 19122

University of Tennessee
Knoxville, Tennessee 37916

Texas A&M University
College Station, Texas 77843

Texas Christian University
Fort Worth, Texas 76129

Texas Tech University
Lubbock, Texas 79409

University of Texas at Austin
Austin, Texas 78712

University of Texas at Dallas
N. Floyd Road, P.O. Box 688
Richardson, Texas 75080

Texas Woman's University
Box 23973, TWU Station
Denton, Texas 76204

University of Toledo
2801 W. Bancroft Street
Toledo, Ohio 43606

University of Toronto
80 St. George Street
Toronto, Ontario
Canada M5S 1A1

Tufts University
Medford, Massachusetts 02155

Tulane University
6823 St. Charles Avenue
New Orleans, Louisiana 70118

Utah State University
Logan, Utah 84322

University of Utah
Salt Lake City, Utah 84112

Vanderbilt University
Box 1822, Station B
Nashville, Tennessee 37235

University of Vermont
Burlington, Vermont 05405

University of Victoria
P.O. Box 1700
Victoria, British Columbia
Canada V8W 2Y2

Villanova University
Villanova, Pennsylvania 19085

Virginia Commonwealth University
1001 West Main Street
Richmond, Virginia 23284

Virginia Polytechnic Institute
and State University
Blacksburg, Virginia 24061

University of Virginia
Charlottesville, Virginia 22901

Wake Forest University
Box 7486, Reynolda Station
Winston-Salem, North Carolina
27109

Washington State University
Pullman, Washington 99164

Washington University
Lindell and Skinker
St. Louis, Missouri 63130

University of Washington
Seattle, Washington 98195

University of Waterloo
Waterloo, Ontario
Canada N2L 3G1

Wayne State University
Detroit, Michigan 48202

Wesleyan University
Middletown, Connecticut 06457

West Virginia University
Morgantown, West Virginia 26506

Western Michigan University
Kalamazoo, Michigan 49008

University of Western Ontario
London, Ontario
Canada N6A 5B7

University of Windsor
Windsor, Ontario
Canada N9B 3P4

University of Wisconsin at Madison
1101 University Avenue
Madison, Wisconsin 53706

University of Wisconsin at
Milwaukee
3210 North Cramer Street
Milwaukee, Wisconsin 53201

Worcester Polytechnic Institute
Worcester, Massachusetts 01609

Wright State University
Dayton, Ohio 45435

University of Wyoming
Box 3838
Laramie, Wyoming 82071

Yale University
225 Prospect Street
New Haven, Connecticut 06520

York University
4700 Keele Street
Downsview, Ontario
Canada M3J 1P3